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Question Paper Code : 21563

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fourth Semester

Mechanical Engineering

ME 2252/ME 43/10122 ME 403/ME 1252 A/080120016 – MANUFACTURING TECHNOLOGY – II

(Common to Industrial Engineering, Industrial Engineering and Management and Mechanical and Automation Engineering)

(Regulation 2008/2010)

(Common to PTME 2252 Manufacturing Technology II for B.E. (Part-Time) Third Semester Mechanical Engineering – Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Classify the tool wear.

2. When will be the negative rake angles be used?

3. State the various parts mounted on the carriage.

4. What are the types of single spindle automatic lathes?

5. Mention any four shaper specifications.

6. State the uses of planer.

7. How is the grinding wheel designated?

8. List the gear generating process.

9. Mention the advantages of stepping motor.

10. Define subroutine.

PART B — (5 × 16 = 80 marks)

11. (a) The Taylorian tool-life equation for machining C-40 steel with a 18:4:1 H.S.S. cutting tool at a feed of 0.2 mm/min and a depth of cut of 2 mm is given by $VT^n = C$, where n and C are constants. The following V and T observations have been noted.

V_1 m/min	25	35
T_1 min	90	20

Calculate :

(i) n and C. (8)

(ii) Hence recommend the cutting speed for a desired tool life of 60 minutes. (8)

Or

(b) (i) Enumerate the essential requirements of a tool material. (8)

(ii) Discuss the various of cutting fluids. (8)

12. (a) (i) Explain the working principle of turret lathe. (8)

(ii) Discuss any two special attachments on lathes. (8)

Or

(b) (i) Explain any four work holding devices that can be used on a lathe. (8)

(ii) Describe a single spindle automatic lathe. (8)

13. (a) (i) List out the various milling operations. (8)

(ii) Describe the working principle of column and knee type milling machine with a neat sketch. (8)

Or

(b) (i) With a neat sketch, explain the working of a vertical boring machine. (8)

(ii) Explain the various operations performed by a broaching machine. (8)

14. (a) (i) Classify the grinding machines. (4)

(ii) Explain the working principle of centreless grinding process. (12)

Or

(b) (i) Describe two types of lapping operations. (6)

(ii) Explain the principle of operation of gear hobbing process. (10)

15. (a) (i) What are the requirements of slideways? (4)

(ii) Explain the machining centre with a neat sketch. (12)

Or

(b) (i) Classify linear interpolation. (4)

(ii) Explain the part programming procedure with a suitable example. (12)